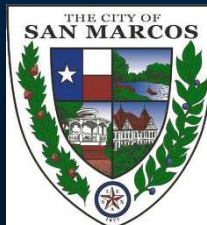


# Edwards Aquifer Habitat Conservation Plan

Watershed Coordination Steering Committee  
June 12, 2014

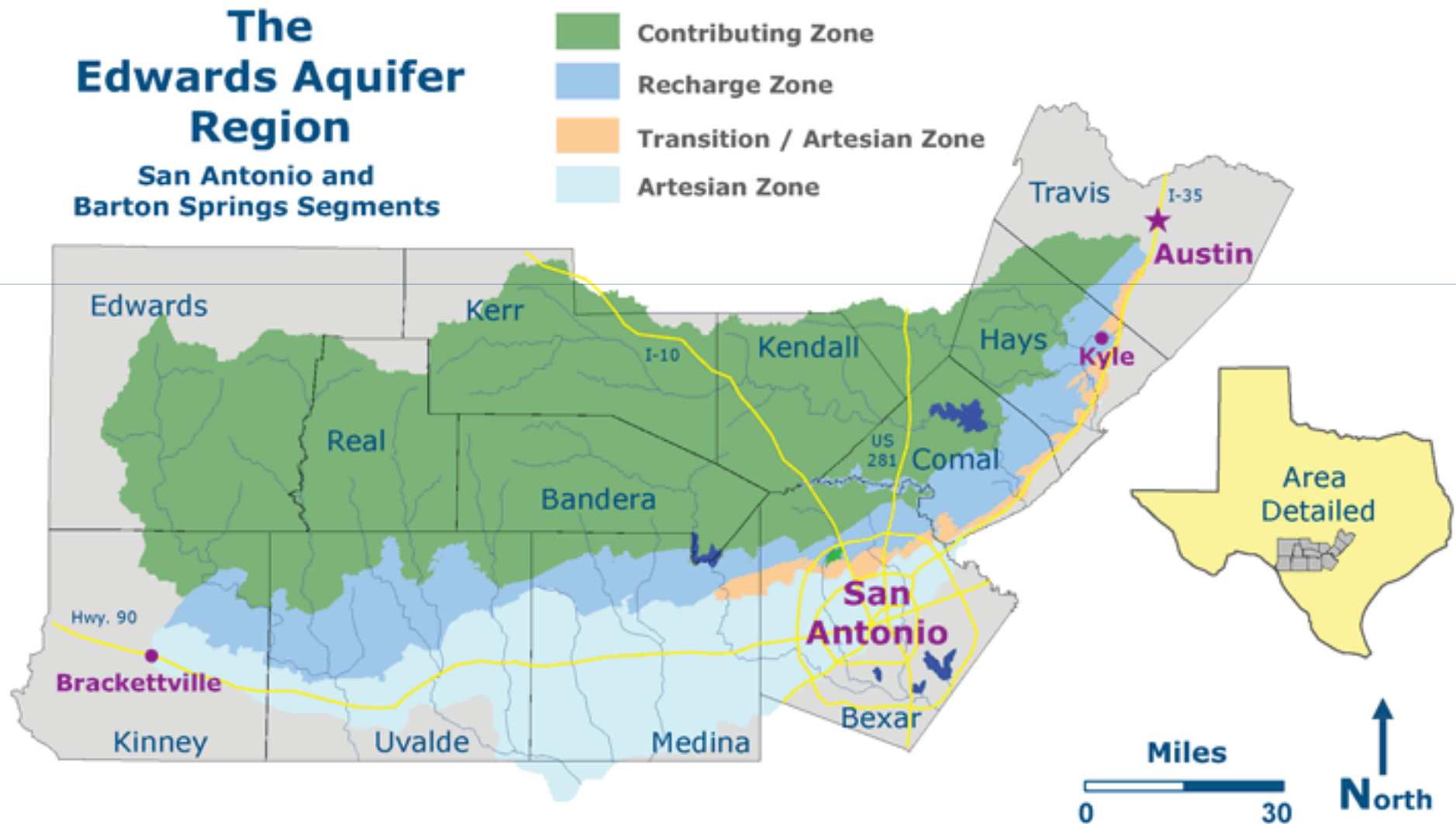
Alicia Reinmund-Martinez  
Edwards Aquifer Authority



# Presentation Outline

1. Background
2. Edwards Aquifer Recovery Implementation Program
3. Edwards Aquifer Habitat Conservation Plan and the Incidental Take Permit
4. Progress – June 2014
5. Role and Oversight of Stakeholders
6. Challenges

# Edwards Aquifer



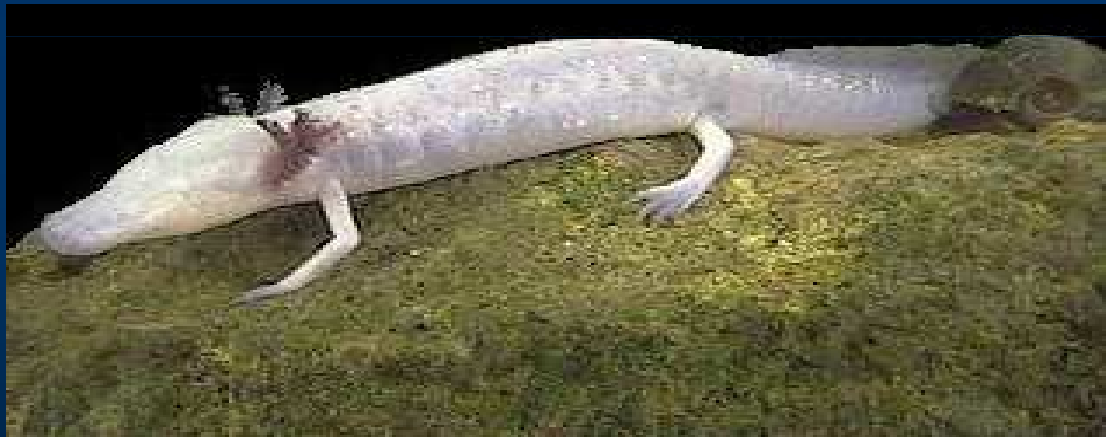
# Endangered Species of Edwards Aquifer System

- Fountain Darter (*Etheostoma fonticola*)
- Comal Springs Riffle Beetle (*Heterelmis comalensis*)
- Comal Springs Dryopid Beetle (*Stygoparnus comalensis*)
- Peck's Cave Amphipod (*Stygobromus pecki*)



# Endangered Species of Edwards Aquifer System

- San Marcos Gambusia (*Gambusia georgei*) – *extinct?*
- Texas Wild Rice (*Zizania texana*)
- Texas Blind Salamander (*Typhlomolge rathbuni*)
- San Marcos Salamander (*Eurycea nana*) - *Threatened*





# Demands on Edwards Aquifer

- Municipal Water
- Agriculture Use
- Industrial Use
- Recreational
- Biological
- Spring Flow
- Downstream Flow



# Concerns of the Conflicting Uses

- Municipal, Industrial, Agriculture – The Pumpers
  - Large portion of viable supply is not used.
  - To keep springs flowing in Drought of Record: 85% reduction of current pumping permits.
  - Uncertainty of supply due to potential federal intervention.
- Recreation, Environmental, Downstream Users – The Pro-Springflow(ers)
  - Must ensure springflow to comply with Endangered Species Act and to protect the environment.
  - Concerned recreation industry could be affected.
  - Comal springs provides baseflow to Guadalupe River during drought.
  - Uncertainty of supply due to potential federal intervention.

# **Creation of the Edwards Aquifer Recovery Implementation Program (EARIP)**

- In 2007, the Texas State Legislature passed Senate Bill 3 which created the Edwards Aquifer Recovery Implementation Program (EARIP) as a collaborative stakeholder process to balance the water needs (Endangered Species and Human) of the Edwards Aquifer.



# EARIP Steering Committee

- Utilities, Municipalities, River Authorities, Industry, Agriculture
- Environmental Groups, Universities, State and Federal Agencies
- Citizens

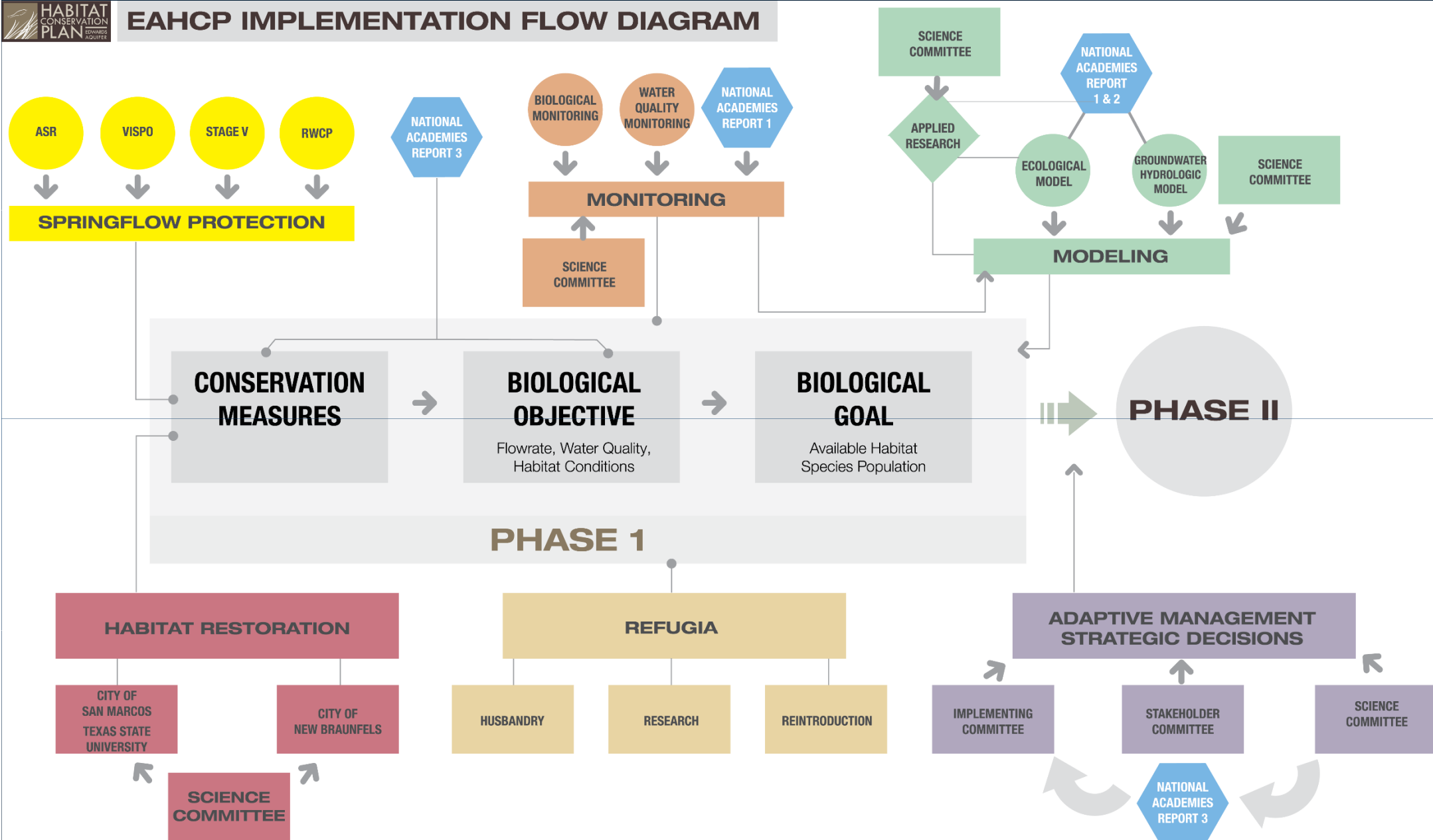


# Federal Permit Issuance

- Incidental Take Permit and Habitat Conservation Plan issued/approved by USFWS and effective March 18, 2013
- Permittees
  - Edwards Aquifer Authority
  - City of San Marcos
  - City of New Braunfels
  - Texas State University
  - San Antonio Water System
  - \*Guadalupe Blanco River Authority
- The Permit covers activities that could affect the species such as:
  - Production of groundwater for irrigation, industrial, municipal, domestic, livestock.
  - Use of instream flows for recreation use.



# EAHCP IMPLEMENTATION FLOW DIAGRAM





# Progress June 2014 – Springflow Protection

- Aquifer Storage and Recovery
  - Storage in the Corrizo Aquifer
  - Contract executed between EAA and San Antonio Water System
  - Leasing underway
- Voluntary Irrigation Suspension Program Option
  - Popular program
  - Acquisition of forbearance underway



# Progress June 2014 – Springflow Protection

- Regional Water Conservation Program
  - Executed: Uvalde, Universal City
  - Pending: San Antonio Zoo, Leon Valley, San Antonio Joint Military Bases
- Stage V Critical Period Reductions

## CRITICAL PERIOD TRIGGERS, STAGES, AND WITHDRAWAL REDUCTIONS

The following Critical Period triggers and percent reductions apply to all Municipal, Industrial and Irrigation users authorized to withdraw more than 3 acre-feet.



### San Antonio Pool

Critical Period is declared in the San Antonio Pool when the 10-day average of the rate of springflow at either the Comal or San Marcos springs, or aquifer reading at the J-17 Index Well in Bexar County drops below the Stage I trigger level. Likewise, a more restrictive stage of Critical Period is activated by any one of these triggers. However, the declaration of a less restrictive stage of Critical Period requires the 10-day averages of all three trigger levels to be above the activation thresholds of the particular stage in effect at the time.

TRIGGER (based on 10-day average)	CRITICAL PERIOD STAGE I	CRITICAL PERIOD STAGE II	CRITICAL PERIOD STAGE III	CRITICAL PERIOD STAGE IV	CRITICAL PERIOD STAGE V
Index Well J-17 Level (MSL)	<660	<650	<640	<630	<625
San Marcos Springs Flow (CFS)	<96	<80	N/A	N/A	N/A
Comal Springs Flow (CFS)	<225	<200	<150	<100	<45/40*
Withdrawal Reduction	20%	30%	35%	40%	44%

### Uvalde Pool

The Uvalde Pool enters Critical Period at Stage II based on the 10-day average of aquifer level readings at the J-27 Index Well in Uvalde County.

TRIGGER (based on 10-day average)	CRITICAL PERIOD STAGE I	CRITICAL PERIOD STAGE II	CRITICAL PERIOD STAGE III	CRITICAL PERIOD STAGE IV	CRITICAL PERIOD STAGE V
Index Well J-27 Level (MSL)	N/A	<850	<845	<842	<840
San Marcos Springs Flow (CFS)	N/A	N/A	N/A	N/A	N/A
Comal Springs Flow (CFS)	N/A	N/A	N/A	N/A	N/A
Withdrawal Reduction	N/A	5%	20%	35%	44%

\*San Antonio Pool only: In order to enter into Critical Period Stage V, the applicable springflow trigger is either less than 45 cfs based on a ten-day rolling average or less than 40 cfs based on a three-day rolling average. Expiration of Critical Period Stage V is based on a ten-day rolling average of 45 cfs or greater.

Definitions: (MSL) Mean Sea Level; (CFS) Cubic Feet Per Second



# Progress June 2014 – Habitat Restoration

- Comal Springs
  - Flow Split Infrastructure
  - Bank Stabilization
  - Native Vegetation
  - Sediment Removal
- San Marcos Springs
  - Texas Wild Rice
  - State Scientific Areas
  - Native Vegetation
  - Exotic Removal



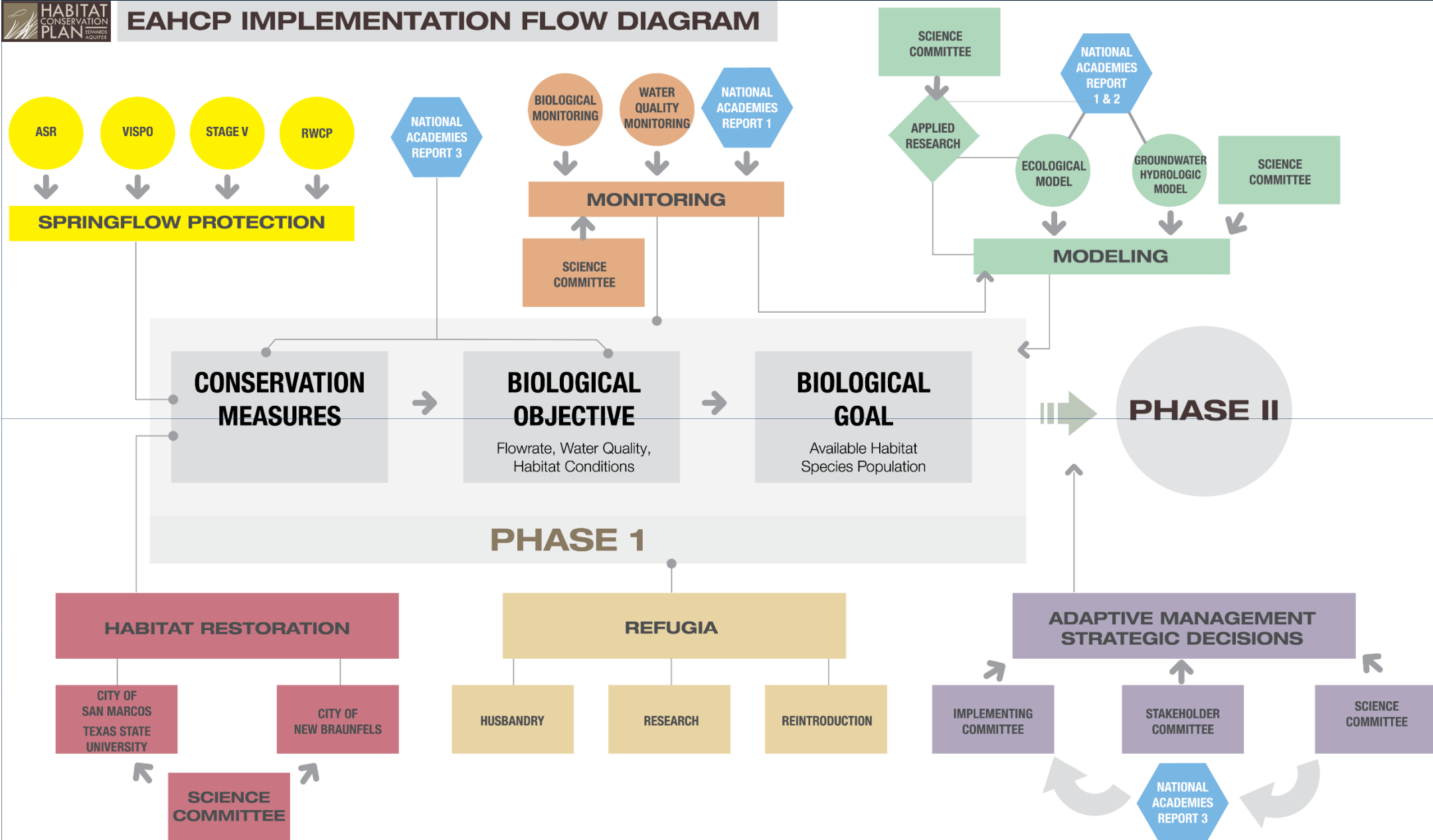


# Progress June 2014 – Supporting Measures

- Biological Monitoring
- Water Quality Monitoring
- Ecological Modeling
- Refugia



# EAHCP IMPLEMENTATION FLOW DIAGRAM



# Role of Stakeholders

- Stakeholder Committee
- Implementing Committee
- Science Committee
- Science Review Panel (National Academy of Sciences)



# Challenges and Successes

- Recognition –
  - The Partners in Conservation Award.
- Drought
  - Invokes Emotion
  - Desire to modify prematurely
  - Water Market
- Flow Triggers to stop Habitat Restoration
  - Comal 130cfs and San Marcos 120cfs

